United States Patent [19]

Herzog

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[54] **CIRCUIT FOR MEASURING CAPACITANCE BY CHARGING AND DISCHARGING CAPACITOR UNDER TEST AND ITS SHIELD**

[75] Inventor: **Michael Herzog**, Witterswil, Switzerland

[73] Assignee: **Flowtec AG**, Switzerland

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[52] **U.S. Cl.** ..... **324/60 CD**; 324/60 C

[58] **Field of Search** ..... 324/61 R, 60 CD, 60 C, 324/61 P, 60 R; 340/870.37

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Primary Examiner—Reinhard J. Eisenzopf
Assistant Examiner—Jack B. Harvey
Attorney, Agent, or Firm—Barnes & Thornburg

[57] **ABSTRACT**

A capacitance measuring circuit operating by the principle of switched capacitors includes a switchover device which alternately and periodically with a predetermined switchover frequency connects the measured capacitance for charging to a constant voltage and for discharging to a storage capacitor whose capacitance is large compared with the measured capacitance and whose terminal voltage is held substantially at a constant reference potential by a controlled discharge current. The magnitude of the discharge current is then proportional to the measured capacity and represents the measured value. A further switchover device applies a shield associated with the measured capacitance with the switchover frequency periodically and alternately to potentials which correspond substantially to the constant voltage and reference potential respectively. As a result, the potential of the shield is caused to follow the potential of the electrode to be shielded in accordance with the principle of "active shielding".

3 Claims, 2 Drawing Sheets